

Title (en)
BLOCK COMPOSITE MATERIAL FOR GAS ACCUMULATION AND METHOD OF PRODUCTION THEREOF

Title (de)
BLOCKVERBUNDMATERIAL ZUR GASAKKUMULATION UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
MATÉRIAU COMPOSITE À BLOCS POUR L'ACCUMULATION DE GAZ ET SON PROCÉDÉ DE PRODUCTION

Publication
EP 4337378 A1 20240320 (EN)

Application
EP 22844311 A 20221021

Priority
• RU 2021135367 A 20211130
• RU 2022000320 W 20221021

Abstract (en)
[origin: WO2023101575A1] The group of inventions relates to the method of production of the block composite material for accumulation of gases containing organometallic coordination polymer and carbon material with increased pour density and bimodal pour distribution efficient for gas storage. The proposed method includes mixing of initial components, organometallic coordination polymer, carbon-containing material (microporous carbon adsorbent, carbon nanotubes, graphenes, graphitized black), binder solution like polyvinyl alcohol, chitosan solution in acetic acid, oxyethylcellulose; molding of the prepared mixture under pressure into blocks, drying and activation of blocks. The proposed block composite materials make it possible to increase efficiency and reliability of accumulation systems of complex gas mixtures when operating in wide ranges of temperature and pressure due to availability of at least two pore modes, each of which is capable of accumulation of gas with maximum efficiency at the specific thermodynamic parameters: temperature and pressure.

IPC 8 full level
B01J 20/22 (2006.01); **B01D 53/02** (2006.01); **B01J 20/20** (2006.01); **B01J 20/28** (2006.01); **B01J 20/30** (2006.01); **F17C 11/00** (2006.01)

CPC (source: EP KR US)
B01D 53/02 (2013.01 - KR); **B01J 20/20** (2013.01 - EP); **B01J 20/205** (2013.01 - EP KR US); **B01J 20/226** (2013.01 - EP KR US); **B01J 20/28011** (2013.01 - EP KR); **B01J 20/2803** (2013.01 - EP KR); **B01J 20/28042** (2013.01 - EP); **B01J 20/2808** (2013.01 - EP KR US); **B01J 20/28092** (2013.01 - EP KR); **B01J 20/3007** (2013.01 - EP KR US); **B01J 20/3042** (2013.01 - EP KR US); **B01J 20/3078** (2013.01 - EP KR US); **B01J 20/3278** (2013.01 - KR); **F17C 11/007** (2013.01 - EP KR); **B01D 53/02** (2013.01 - EP); **B01D 2253/25** (2013.01 - EP KR); **B01J 2220/46** (2013.01 - US)

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
WO 2023101575 A1 20230608; CN 117460577 A 20240126; EP 4337378 A1 20240320; JP 2024528617 A 20240730; KR 20240049854 A 20240417; US 2024269648 A1 20240815

DOCDB simple family (application)
RU 2022000320 W 20221021; CN 202280039062 A 20221021; EP 22844311 A 20221021; JP 2024501741 A 20221021; KR 20247011764 A 20221021; US 202218564747 A 20221021